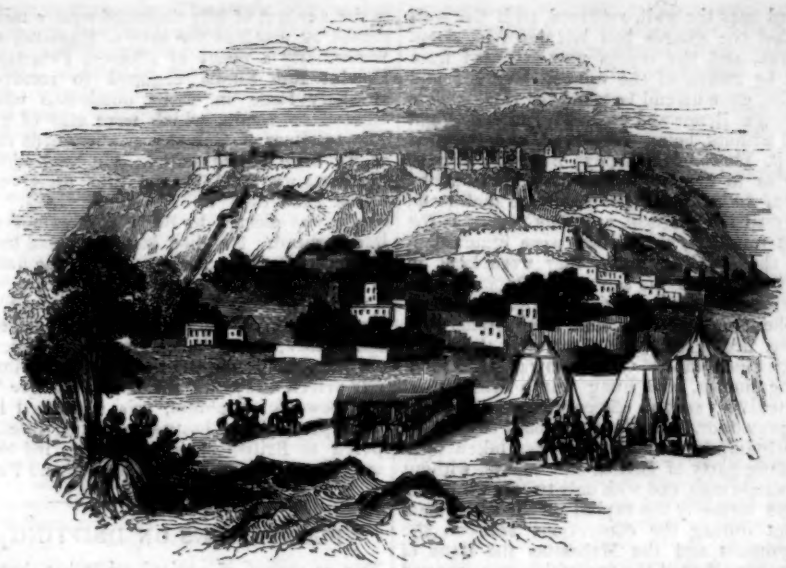

[Fortress of Gwalior.]

GWALIOR, OR GUALIOR.

The city and fortress of Gwalior, in Hindustan, are about seventy-five miles south from the city of Agra, in 26° 18′ N. lat., 78° 5′ E. long.

The city of Gwalior, which stands at the foot of the lofty mass of rock on which the fortress of Gwalior is situated, is the capital of the Gwalior state, and the court residence of the Maharaja Jyajee Rao Sindia, the sovereign of that state. The city is not walled, but at the entrances of the parallel streets, which run up to the side of the rocky hill, there are stone gateways, with strong gates, sufficient to afford a short means of defence against an irregular attack. The houses are built with stone, of which the neighbourhood affords an abundant supply. The general appearance of the streets, however, is somewhat mean, and the public buildings are not distinguished for architectural beauty. Trees are intermixed among the houses and minarets, as is usual in Indian towns. The number of inhabitants is about thirty thousand.

The fortress of Gwalior is high above the city, on the summit of the hill of rock at the base of which the city stands. The rock rises precipitously from the plain, and is perfectly isolated, but an amphitheatre of hills, at the distance of from one to three miles, partly surrounds it. The rock is long, narrow, and lofty. The length at the bottom is above three miles, at the top nearly two miles; the width at the top is irregular, but seldom exceeds three hundred yards. The entire height is about three hundred and fifty feet, and the whole rock is precipitous, but the upper part, which is about two hundred feet high, is nearly perpendicular, for the most part by nature, but partly by scarping the rock. The area at the top is nearly level, and is covered with numerous buildings and with cultivated ground. There are wells and reservoirs for water, and all things needful to enable the garrison to sustain a siege. The only means of access to the fortress is by steps up the side of the rock; the exterior part of the steps is defended by a wall and bastions, and the ascent is further protected by stone gateways. A stone parapet extends round the brow of the rock on every side.

Of all the hill fortresses of India that of Gwalior is the largest, the strongest, and the most magnificent. On looking up from the city at the precipitous mass and the defences which crown the brow of the rock, the appearance is described as of surpassing grandeur. Before the introduction of European warfare the fortress was deemed impregnable; and even now, with all the appliances of shells and rockets and engineering skill, the conquest would be difficult, and would probably require much time. Notwithstanding its strength, however, the fortress has been several times taken and re-taken by the Mohammedans and the Hindoos, sometimes by slow siege, at other times by treachery, by corruption of the garrison, and similar means.

In 1780 the fortress of Gwalior was taken from the Mahrattas, who then held it, by Colonel Popham, or rather, by Major Bruce and the escalading party whom he led. The successful result of the enterprise was as extraordinary as the spirit of romantic daring with which it was executed. Colonel Popham was encamped at Ryepoor, eight miles from Gwalior. He was informed by the Rana of Gohud, from whom the fortress had been taken by the Mahrattas, that some banditti who infested the neighbourhood had once climbed the rock and got into the fortress. He engaged some of them to make the attempt again; they again succeeded, and ascertained that the guard, after going the rounds, were accustomed to lie down to sleep. Major William Bruce, the brother of Bruce the Abyssinian traveller, then undertook to scale the walls of the fortress with a party of sepoy grenadiers. Colonel Popham had ladders both of wood and rope made with the utmost secrecy, and shoes of woollen lined with cotton for the scaling-party, to make the ascent as noiseless as possible.

At eleven o'clock on the night of the 3rd of August, 1780, Major Bruce set forward with Lieutenant Cameron, the engineer, and twenty sepoy grenadiers, and, marching by unfrequented ways, they reached Gwalior a little before daybreak. Colonel Popham followed with two battalions. Bruce, on arriving at the foot of the rock, saw lights, and heard the guards cough, which was the Mahratta mode of signifying "All 's well." When the lights disappeared the wooden ladders were placed, and one of the robbers,

having climbed over the wall, returned with the welcome news that the guards had laid down to sleep. Bruce, Cameron, and the sepoys now mounted from crag to crag by means of the wooden ladders; and Cameron having gone up and fastened the rope-ladders to the battlements, Bruce and the sepoys ascended, got over the wall without being discovered, and squatted down behind it. Three of the sepoys, however, were so inconsiderate as to fire on three of the garrison who were lying near them. The three men were shot dead; the noise alarmed the garrison, and they rushed to the spot in great numbers, but as they were ignorant of the force of the assailing party, they were kept in check by the brisk fire of the sepoys till Popham himself got up with a reinforcement. The garrison then retreated to the inner buildings, and, after discharging a few rockets, fled precipitately through the gate; while the principal officers, thus deserted, assembled in one of the houses, and hung out a white flag. Popham immediately sent an officer with assurances of quarter and protection; and thus, in about two hours, this apparently impregnable fortress was taken by a small escalading party of British and sepoys, without the loss of a single man, and with only twenty wounded.

Gwalior was formerly the capital of the small state of Gohud, but during the contentions between the Mogul government and the Mahrattas the Rana of Gohud was rarely allowed the use of his own city and fortress, and was generally compelled to pay tribute to one or the other. After the British obtained possession of it by Colonel Popham's escalade, it was given up to the Rana of Gohud, on certain conditions of remuneration for our protection; but failing to fulfil those conditions, the Rana was left to defend himself against the Mahrattas as well as he could. Madajee Sindia obtained possession of the fortress after a siege of many months, and then only by corrupting a part of the garrison. The territory of Gohud, with its capital and fortress, was in the possession of Holkar when the Mahratta war broke out in 1803. After his final subjugation, the British authorities, by the treaty of Muttra, November 23, 1805, transferred Gohud and its capital to Dowlut Rao Sindia, in whose family they still remain, forming a portion of the state of Gwalior, whose sovereign is styled Maharaja (great prince) of Gwalior.

The Mahratta family of Sindia (or Scindia) is of comparatively modern origin. Ranojee Sindia, the first who distinguished himself, was a potail, or headman of a Hindoo village, when he was appointed by the Paishwa Badjee Rao to the humble office of his slipper-bearer. He was a shrewd and enterprising man, and in 1743 had risen to the highest rank of Mahratta chiefs, and had obtained the hereditary government of about one half of the large province of Malwa. After his death, Madajee Sindia, one of his sons, became the most powerful of the Mahratta chiefs —so powerful, indeed, that he became, to use the words of Sir John Malcolm, "the actual sovereign of Hindustan from the Sutleje to Agra, the conqueror of the princes of Rajpootana, the commander of an army composed of sixteen battalions of regular infantry, five hundred pieces of cannon, and one hundred thousand horse, the possessor of two-thirds of Malwa and some of the finest provinces in the Deccan." Madajee Sindia died in 1794, and, leaving no sons, was succeeded by Dowlut Rao Sindia, who was the grandson of Tukajee Sindia, Madajee's brother. In the Mahratta war which broke out in 1803, Dowlut Rao Sindia and the Rajah of Berar were the chief princes implicated; and after a series of brilliant actions, by Lord Lake in Upper India and by Major-General Wellesley in Central India, the Mahratta forces were completely defeated, and Sindia was compelled to cede territory to the amount of fifty thousand square miles, which is almost as much as the area of England, exclusive of Wales. By a treaty of alliance, February 27, 1804, Dowlut Rao Sindia engaged to receive a British auxiliary force in those dominions which he was allowed to retain, which were still of great extent. The territory of Gohud was afterwards ceded to him, as we have before stated. He kept aloof from the Mahratta war of 1818, and thus preserved his territories. He died on March 21, 1827. Janko Rao Sindia was elected by the widow as successor to her late husband. He died last year, and his widow has elected Jyajee Rao Sindia, who was the nearest relative of Janko Rao, and is now the reigning Maharaja of Gwalior. Being yet too young to act for himself, Mama Sahib was appointed regent by the widow (the Maharanee, or Mahabaee, as she is styled), with the concurrence of the British authorities; but the regent was driven away, and the Dada Khasgee Walla, a rich and powerful Brahmin, was appointed in his place. This proceeding, hostile to British interests and opposed to British superintendence, led to the two late sanguinary battles at Maharajpoor and Punniah.

PLANTATIONS ON DRIFTING SANDS.

The attention of agriculturists has been frequently directed to the best mode of fixing the layers of drifting sand which sometimes occur in districts bordering on the sea, or exposed to wind from particular quarters. If these sandy spots were merely barren and still, doing neither good nor harm, the matter would have been of less importance; but shifting sands are liable from their very nature to bring great destruction to neighbouring towns and villages.

Suffolk and Norfolk have been at different times subject to sand-floods of this description from sand-hills lying not far from the coast. The general progress of these floods has been somewhat as follows: Violent winds break through the turf that covers these hills, and then the sand, lying loose and naked, is soon carried down upon the plains, where it covers and buries the grass, and in a very little time destroys the light turf; then, mixing itself with the sand underneath, it becomes one bed of dry matter. A large body of sand being thus got together, nothing stops its progress, but at every storm it rolls over more and more ground; so that in a few years it extends itself to a vast distance, especially where the ground over which it passes is of the same sandy nature, and only covered with a thin turf. In some parts of Suffolk the ground encourages this change so greatly, that a bed of sand thus loosened from a neighbouring hill, and covering only a few acres at first, will ultimately deluge a large area, not being arrested by rising ground or any other impediments.

In the sixth volume of the 'Transactions' of the Royal Irish Academy is a paper by the Rev. W. Hamilton, on the effects of the westerly winds of Ireland in causing sands to shift, and to bury houses and villages beneath them. On many parts of the Irish coasts houses and villages have been actually dug out of sand-hills, each one having, like a miniature Pompeii or Herculaneum, been overwhelmed by an enemy which it could not resist. A case is mentioned in which the ruins of a village were to be seen in the county of Antrim, in 1783, the inhabitants having been all driven away by the gradual influx of sand. A similar instance was observable in the county of Donegal in 1787. In another instance Mr. Hamilton, while taking an excursion through Donegal, had great difficulty in finding the house of a guide to whom he had been directed. "After much search," he states, "I perceived its roof

just emerging from the sands. The owner told me that his house was not long built, and had at first a considerable tract of pasture-ground between it and the seashore; but that, of late, he was every year obliged, with great labour, to dig it out of the encroaching sands, and purposed shortly to remove it to the opposite shore of a lake called Mullochdearg, which lay behind the house, in despair of being able to maintain its present situation."

The same writer describes a spot in which the boundary between two estates was only marked by a heap of iron scoriæ amid shifting sands; the scoriæ pointing out the spot where a smith's forge had existed before the sands had driven away the smith and buried his forge. In another case an elegant mansion had become almost buried. This mansion was situated in the peninsula of Rossgull in Donegal, and had been inhabited by the family of the Boynes. The approach to the house was from a level green on the shore, through a succession of embattled courts and hanging terraces, rising one above another; and the rear of the house was bounded by gardens and parks well laid out. Such was the house in its prime; and Mr. Hamilton then notices the state in which he found it, after the approach of sand-floods. "At present every object in this place presents to view peculiar characters of desolation. The gardens are totally denuded of trees and shrubs by the fury of the western winds; their walls, unable to sustain the mass of overbearing sands, have bent before the accumulated pressure, and, overthrown in numberless places, have given free passage to this restless enemy of all fertility. The courts, the flights of steps, the terraces, are all involved in equal ruin, and their limits only discoverable by tops of embattled walls, visible amid hills of sand. The mansion itself, yielding to the unconquerable fury of the tempest, approaches fast to destruction. The freighted whirlwind, howling through every avenue and crevice, bears incessantly along its drifted burden, which has already filled the lower apartments of the building, and begins now to rise above the once elevated thresholds. Fields, fences, villages, involved in common desolation, are reduced to one undistinguishable scene of sterile uniformity; and twelve hundred acres of land are said thus to have been buried, within a short period, in irrecoverable ruin."

It is obvious that if any means could be devised of giving a fixity to the sand, whereby it would not be acted on by the wind, much of the evil above described would be avoided. One writer has suggested that a way of stopping the progress of the drifting sand (supposing the motion to have once commenced) would be by planting hedges of furze one over another: as these become levelled, they will by degrees stop or divert the progress; and cases have been known where the spread of the sand has been checked by this means after a rise of twenty feet had taken place.

The drift sands of the Outer Hebrides have in some places been consolidated and covered with verdure in the following manner, described in the 'Quarterly Journal of Agriculture.' Square pieces of turf, cut from solid sward, are laid upon the drifting surface at stated intervals apart; bearing nearer together in steep places, and farther apart in places of less declivity, while in very steep places they are placed close together. These turfs prevent the sand from drifting, even in the intervals between them. Mr. Macleod, of the island of Harris, has adopted another method, by which he has brought into useful permanent pasture upwards of a hundred and twenty acres of useless drifting sand. The operation is performed in the month of September, by the aid of the *arundo arenaria*, or bent grass. These plants are cut about two inches below the surface with a small thin-edged spade, having a small handle, which a man can use in his right hand, at the same time taking hold of the grass with his left. Other persons carry these plants to the drifting sand, where they are planted in a hole or cut from eight to twelve inches deep, made with a large narrow-pointed spade. A handful of the *arundo* is put into each of these cuts, the cuts or holes being about a foot apart. When properly fixed in the drifting sand, the roots begin to grow and spread under the surface, in the course of a month after planting. This grass is relished by cattle in summer, but it is of greater value when preserved in the ground for wintering cattle. Neither wind, rain, nor frost will destroy it, but the old grass naturally decays towards the latter end of spring and the beginning of summer, as the new crop grows. White and red clover will grow spontaneously among this grass in the course of a few years, provided it is well secured.

The *pinaster*, or *cluster-pine*, has been used with great success as a tree for fixing drifting sands. This is a tree which seldom thrives except in a deep sand or sandy loam; and hence its fitness for this purpose. On the estate of Westwich House, in Norfolk, a magnificent double avenue of pinasters has been formed, five miles in length, in a bleak situation, and in a sandy soil resting on a subsoil of coarse hard gravel. It was in France that the plan of planting this tree on shifting sands was adopted about the year 1789. There are very extensive downs or sand-hills between Dunkirk and Nieuport, between Calais and Boulogne, and between the rivers Adour and Gironde. In the Gulf of Gascony the downs are composed of drifting sands, covering three hundred square miles. This immense tract has been compared to a sea, which, when agitated to fury by a tempest, had been suddenly fixed and changed to sand. Before the attempts to fix the sand, the district offered nothing to the eye but a monotonous repetition of white wavy mountains, perfectly destitute of vegetation. In times of violent storms of wind, the surface of these downs was entirely changed; the sandy hills often becoming valleys, and the reverse. The sand, on these occasions, was often carried up into the interior of the country, covering cultivated fields, villages, and even entire forests. This took place so gradually (by the sand sweeping along the surface and thus raising it, or falling from the air in a shower of particles), that nothing was destroyed; the sand gradually rose among crops as if they were inundated with water; and the herbage and the tops of trees appeared quite green and healthy, even to the moment of their being overwhelmed with the sand, which is so very fine as to resemble that used in hour-glasses.

It was in such a district that M. Bremoutier began, in 1789, his attempts to fix the drifting sands by planting pinaster-trees. The mode adopted is mainly as follows:—on the surface are sown seeds of the common *broom*, mingled with those of the *pinaster*; commencing on the side next the sea, or on that from which the wind generally prevails, and sowing in narrow zones, in a direction at right angles to that of the wind; the first sown zone being protected by a line of hurdles, this zone protecting the second, the second the third, and so on, till the whole breadth of the downs is covered with plantation. From four to five pounds of broom-seed, and from one to two pounds of pinaster-seed, are sown per acre, and immediately covered with branches of pines, or of other trees, with the leaves on, brought from the nearest woods, these branches being intended to shelter and protect the seed, and to retain the sand. The branches are laid down in a regular manner in the direction of the wind, and overlapping one another, so as to produce a sort of thatching to the surface; and, in places very much exposed, rods are laid across the branches, and

firmly hooked down. In six weeks or two months the broom-seeds have produced branches six inches in height, and which attain three or four times that height in the course of the first season. The pinasters do not rise above three or four inches the first year; and it is seven or eight years before they completely overtop the broom, which often attains on the French downs a height of fifteen or eighteen feet. At the age of ten or twelve years, the pinasters have in a great measure suffocated the broom, and they are then thinned, the branches cut off being used for the purpose of thatching downs not yet recovered, and the trunks and roots cut into pieces and burned to make tar and charcoal. In about twenty years the trees rise to twenty or thirty feet in height; and in that stage they produce resin, which forms a valuable product for ten or twelve years longer. After this the trees are cut down, the trunks burned for tar and charcoal, the branches employed in thatching other moors, and the seeds giving birth to a new race of plants.

Such is the nature of the excellent plan adopted by M. Bremoutier, whereby not only were the shifting sands fixed, but timber, charcoal, tar, and resin were produced from a district before not only useless, but much worse than useless to the neighbouring villages. In 1811 a commission appointed by the French government reported that about twelve thousand five hundred acres of downs had been covered with thriving plantations; they also reported that it was found that a thatching or covering of any kind of vegetable herbage, such as straw, rushes, reeds, sea-weed, &c., might be used instead of branches, and was even preferable. Another improvement, which had been tried and found very successful, was the substitution of a fence of boards for that of wattled hurdles, as more completely excluding the wind. The plantations thus created out of a sandy waste, together with others in the Landes of Bordeaux, and between that city and Bayonne, are called *pignadas*, and now constitute the principal riches of the inhabitants, who are almost entirely supported by the preparation of resin and tar from the pinaster-trees raised in what were once sandy downs.

RAMBLES FROM RAILWAYS.

The River Mole.—No. II.

After quitting Betchworth the pedestrian will take the path by the mill to Dorking; or he may, if he please, step aside a little to Deepden, where is a fine house with some good pictures, and around it many walks such as it is a pity to lose. Dorking is a long, neat, and quiet town, famous for its poultry, butter, and other good things; and if we had time, and this were the place to descri'.e it, would be worth a more careful survey. We believe it is quite unmatched, for the number and variety of pleasant rambles it offers, by any other town within the same distance of London. Such walks, for instance, as those about Deepden, of which we have spoken; along the top of the fine range of downs towards Guildford; Leith Hill, the stroll towards which is very agreeable, while the view from its summit is on a clear day a treat of no ordinary kind; the vale of Mickelham, along which we shall wander presently; and then there is Wotton, the birthplace and, for the last years of his life, the residence of the excellent John Evelyn, in allusion to whose 'Sylva, or a Discourse of Forest-Trees,' it has been said, by D'Israeli, "The present navy of Great Britain has been constructed with the oaks which the genius of Evelyn planted." Nor will this appear hyperbolical, if we notice what he says in the dedication of one of the later editions to Charles II.:—"I need not acquaint your Majesty how many millions of timber-trees, besides infinite others, have been propagated and planted throughout your vast dominions at the instigation and by the sole direction of this work, because your Majesty has been pleased to own it publicly for my encouragement." The discourse was written in answer to certain inquiries sent by the Commissioners of the Navy to the Royal Society, and was the first book printed by order of that Society. It is filled with learning, for Evelyn was enthusiastically attached to his subject, and had been for years in the habit of collecting everything he met with in his reading that could do honour to his favourite trees. But though there is an air of pedantry and something of formality about it, the book is an agreeable one to read, and has not yet lost its value as a guide to the forester. Evelyn was a model of an English gentleman of that period, and though connected with the court of the profligate Charles II., he retained to the last uninjured the manly virtues of his character. His 'Diary,' first published about twenty-five years ago, is exceedingly interesting as a picture of the manners of his time, and it exhibits his many excellencies in an unobtrusive manner. Though attached in no ordinary degree to a country life, he was active in his duties as a citizen; indeed his conduct during the Great Plague might almost be called heroic. Upon the declaration of war with the Dutch, Charles appointed Evelyn a commissioner for taking care of the sick and wounded and prisoners arising therefrom. A short time before the appearance of the plague in London, Evelyn's charge had been removed to the Savoy; and during that fearful visitation neither the entreaties of his friends nor his own danger could induce him to quit the scene of his duties. But having sent his wife and family to Wotton, he determined to stay himself, trusting, as he says, "in the providence and goodness of God." The anxiety his situation must have produced was increased to a most painful extent by the court having neglected at this trying time to furnish him with the necessary funds to relieve the miseries of his charge. "One fortnight," he says in a letter written at this time, "has made me feel the utmost of miseries that can befall a person in my station and with my affections. To have twenty-five thousand prisoners and fifteen hundred sick and wounded men to take care of, without one penny of money and above 2000*l.* indebted." "Our prisoners beg of us as a mercy to knock them on the head, for we have no bread to relieve the dying creatures. I beseech your honour let us not be reputed barbarians." At another time he says he and Sir William D'Oily have lost all their "servants, officers, and most necessary attendants, and have nothing left us to expose but our persons, which are every moment at the mercy of a raging pestilence." He was in London too during the Great Fire which followed the pestilence, and his letters give the most vivid description of it perhaps extant. Evelyn was the friend of Jeremy Taylor and of Cowley, the latter of whom addressed his 'Garden' to him. Evelyn was greatly attached to gardens and gardening, and had written much on the subject. Cowley addresses him in that felicitous prose none else ever wrote so well: "I know nobody that possesses more private happiness than you do in your garden; and yet no man who makes his happiness more public by a free communication of it to others. All that I myself am able yet to do, is only to recommend to mankind the search of that felicity, which you instruct them how to find and to enjoy.

> "Happy art thou whom God does bless
> With the full choice of thine own happiness."

Evelyn's wife was a very superior woman; his Diary bears abundant testimony to her many excellencies. Cowley makes a pleasant allusion to her in the lines

[Leatherhead Church.]

succeeding those above quoted: he reminds his friend that in his "virtuous wife" he has "pleasures more refined and sweet;

"The fairest garden in her looks,
And in her mind the wisest books."

There is a homely companionable vein in our older writers, quite delightful to meet with. But we have talked so long of Evelyn, we cannot stay to describe the house. Both it and the grounds possess many relics of its celebrated possessor.

Before we leave the neighbourhood of Dorking we must ascend its boasted eminence, Box Hill; so named from the number of box-trees that grow upon it: in old maps it is marked White Hill. Some years ago the box-trees then growing upon it were nearly all cut down, but there is a goodly plantation of them there now, and they appear very flourishing. The view from its summit is a most extensive one, there being little to interrupt it in any direction. You may trace the course of the Mole for miles from it. Over the downs towards Croydon is a rich and pleasing prospect; that on the south towards Sussex is more varied, and from the greater quantity of wood perhaps more attractive; while on the south-west Dorking lies at your feet, stretching away towards the wide valley formed by the Guildford downs and the range of hills of which Leith Hill is the most prominent. Sheltered by these hills and with the rich valley behind it, its appearance is unusually beautiful, as it is seen through the softening haze of the mid-day sun. As evening draws on, and the hills deepen into gloom, while the light blue smoke ascending from a thousand chimneys half conceals the town, and the sun is slowly sinking behind and gilding the ridge of distant hills, it is more sombre, but takes a firmer hold on the mind.

In the outset of our account we said that the Mole had received many notices from the poets for a quality it was only imagined to possess. We alluded to the fabulous account of its sinking into the earth and reappearing some miles farther on: as it was at the foot of Box Hill it was said to disappear, this seems to be the proper place to notice it. Camden says, "The Mole coming to White (*i. e.* Box) Hill hides itself, or is rather swallowed up, at the foot of the hill there; and for that reason the place is called the Swallow: but about two miles below it bubbles up and rises again; so that the inhabitants of this tract, no less than the Spaniards, may boast of having a bridge that feeds several flocks of sheep." Izaak Walton, who overlooked little that had been said about rivers, quotes this with some relish, and it is repeated by most of our older writers who have occasion to mention the Mole. Nor was the error soon removed from our descriptive works. We find it in Chamberlayne's 'Present State of Great Britain,' 1743. As might be expected, the poets gladly availed themselves of so poetical a circumstance; thus Milton, in one of his juvenile poems (that entitled 'At a Vacation Exercise in the College'), speaks of the

"Sullen Mole, that runneth underneath;"

a line which Pope evidently copied in his 'Windsor Forest' (and D'Israeli might have given it a place among his 'Poetical Imitations')—he calls it the

"Sullen Mole, that hides his diving flood."

Drayton, in that curious rhyming repertory of out-of-the-way local information, the 'Poly-Olbion' (Song 17, p. 265, &c., ed. 1622), has given a very fanciful account of the matter. He is describing the course of the Thames, and when he has brought him to Hampton, he says—

"'Gainst Hampton-court he meets the soft and gentle Mole,"

and is a little inclined to dally awhile with her, which Thame and Isis, the parents of Thames, see with some displeasure, as they are anxious for him to hasten on to unite with Medway:—

"But Tames would hardly on; oft turning back, to show
From his much-loved Mole how loth he was to go.
The Mother of the Mole, old Holmesdale, likewise bears
The affection of her childe as ill as they do theirs."

She accordingly tries various ways to prevent their meeting; but Mole is not to be easily stayed; and at length

"Old Holmesdale raised hills to keep the straggler in,
That of her daughter's stay she need no more to doubt:
(Yet never was there help, but love could find it out).
Mole digs herself a path, by working day and night
(According to her name, to show her nature right),
And underneath the earth for three miles' space doth creep."

Yet, after all, Thames is forced on; although we are glad to find, a little lower, that something like poetical justice is rendered to our Mole: for when

"Tames did understand what pains the Mole did take"

for his behoof, he showed his sympathy, and in some measure endeavoured to requite her attachment; for

"Up towards the place, where first his much-loved Mole was seen,
He ever since doth flow towards delightful Sheen."

In a note to his account of the disappearance of the Mole, Drayton says, "The Mole runs into the earth about a mile from Darking in Surrey, and after some two miles sees the light again, which to be certain hath been affirmed by inhabitants thereabout reporting." And then proceeds to show by plenteous classical citations, that there are rivers in Greece and Sicily which flow underground in a similar manner. De Foe, in his 'Tour through Great Britain,' is said by Bray to have first pointed out the error of Camden. But he was wrong in denying the statement entirely; it seldom happens that these accounts, however exaggerated, are altogether without foundation. The statement of Mr. Bray, the editor of Manning's 'History of Surrey' (in vol. ii., pp. 649-666, &c. of that work), is to the effect that the Mole does not disappear at once and then burst forth at once; but in a dry summer, in various places between Burford-bridge, in Mickelham, and Thorncroft-bridge, it is absorbed and lost in the porous bed through which it runs, leaving in many places the naked gravel and in others forming a stagnant pool. Mr. Bray says he has often seen it dry at Burford-bridge, though in floods the river has nearly run over the bridge. There is no reason to suppose that it forms an underground current; there is, however, a spring by Thorncroft-bridge, at a small distance from the river, from which a constant stream issues and runs into it; there are also two hollows in Burford Park, in the bottom of which the current of the Mole may, it is said, be traced. A careful plan of the Mole from Box Hill to Leatherhead is given by Mr. Bray, in which the parts that become dry are shown, and the 'Swallows' between these places marked. A little below the places which become dry, other streams run into the bed of the river, and it appears to flow on as usual: these circumstances combined, no doubt gave rise to the report. There is some interest in tracing these "vulgar errors," and we hope our readers will not think we have dwelt too long on this.

Leaving Box Hill on our right, we soon reach Burford-bridge, of which mention is made above. The vale here is called Mickelham, and is one of the loveliest anywhere to be found. It would indeed be no easy thing to select a more beautiful ramble than that by the side of the Mole as it winds through this valley. The downs are close on either hand, and, although of no great height, afford prettily varied slopes, and are more wooded than the downs usually are. All along the valley there is a pleasing admixture of soft swelling downs and cultivated land, parks with magnificent trees and lordly mansions, happy-looking country-houses, so snugly wrapped up in their coatings of evergreens, yet so gay in their heaps of brilliant flowers, with one or two antique though rural churches, and many a picturesque cluster of cottages. Mr. Sharp (conversation Sharp, as he is called) had a 'Retreat' in Mickelham, and many a gathering of the most gifted men of the age occurred within its walls. Sir James Mackintosh, as we are informed in his Memoirs, used often, when in India, to speak with great delight of this, "The happy valley," as he was accustomed to designate it. Norbury Park, the seat of Mr W. Lock, the friend of Fuseli, so often referred to in Fuseli's Life, is in Mickelham. The Mole flows through its beautiful grounds: the house is a fine structure; its walls were painted by Barrett, the successful rival, in the estimation of his contemporaries, of Wilson, with views chiefly of the Lakes, but which appear to harmonize with the natural scenery by which they are surrounded. In the Park is an abundance of fine timber: formerly there is said to have been so many walnut-trees on the estate, as to have produced 100*l.* at a tything of 4*d.* a tree. They were nearly all cut down, however, by a Mr. Chapman, when he purchased the estate. Mickelham Church is evidently of great antiquity: it has a large square tower with double buttresses at the corners; at one side of the tower is a window with a round-headed arch with dentals, and in the body of the church are some others of curious form: but it is to be regretted that, at some reparation of the edifice, they have been so altered and painted, that it is not easy to tell how much of them is genuine. There are several interesting monuments about the church, and, altogether, it will repay examination. A little farther on, a neat school has just been erected on the hill-side; it is designed with a happy feeling (as an artist would say) for the capabilities of the situation, and will not fail to remind the traveller of the secluded kirk-houses on the fell-sides in the northern counties.

Although the Mole here runs pretty much through private grounds, it may be followed by the pedestrian, and is so beautiful all the way to Leatherhead, that it should not be left, or only to look at some places that may be passed. Here, as in Betchworth Park, it has many little islets; and the river, altogether, will recall the Thames in its pleasanter parts to the memory.

After leaving Norbury Park, we soon reach Thorncroft, and shortly descry the lofty tower of Leatherhead Church, with the irregular roofs of the town beyond it. Leatherhead Church is an ancient structure, having been rebuilt about 1346, when the present tower was added. It bears evident marks of having been built at various periods, being formed partly of brick, partly of a sandstone that is fast decaying, and partly of flints and rubble. It has a variety of projecting roofs and porches, that have been added to the original edifice as convenience rather than design suggested; the effect, however, is not the less picturesque for the absence of formality. The whole was modernized in 1701. The interior is very neat and clean in its appearance. It abounds with noticeable monuments both within and without.

Leatherhead is a quiet town; little appears to disturb it—the ostler at the Swan seems the only person moved even by the stage as it passes through its long street. It is situated on very irregular ground, and has therefore less stiffness than many country towns. It is a very old place, being mentioned in Domesday Book; yet although it bears evident traces of antiquity, there is little in it to attract attention—nor are there any buildings of historical interest, unless the Mansion-house in South-street may be said to possess it, which has the somewhat unenviable distinction of having been the residence of Judge Jeffries. His daughter died here; her burial is recorded in the parish register to have taken place on Dec. 2nd, 1688. But even Jeffries's house is not in its original condition: it was rebuilt in 1710. There is a public-house near the bridge that is supposed to be the same whose alewife is celebrated by the poet Skelton. The Mole at Leatherhead spreads out to a considerable width, and is crossed by an excellent bridge of fourteen arches, seven of them being in Fetcham parish. Leatherhead

trout are very famous, and the traveller who wishes to test their excellence may, if he be a brother of the angle, throw a line here—or mine hostess of the Swan will, in the proper season, supply those who may prefer the fish without the labour.

[To be continued.]

BALMS AND BALSAMS.

The word *balsam*, like many other words in common use, has a double signification. It is applied to a kind of garden-plant very common in this country, and it is also applied to a viscid juice or sap employed in the East for perfumery and for medical purposes. Nay, there is even a third mode of employing the word; for while the true balsam is a juice exuding from trees, there are also artificial balsams formed by mixing various ingredients into a paste or unctuous substance. The general character of a true or natural balsam is, that it is a fragrant, oily, viscid, inflammable juice, exuding from various trees and plants, insoluble in water, incapable of putrefaction, and exerting a preservative power over animal substances. This last-named property gave rise to the expression *embalming*, as applied to dead bodies undergoing the preservative process.

The *Balm of Gilead* (not the composition of Solomons, of Liverpool, which merely assumed the popular name) is one of the most noted of the balsams (for 'balm' and 'balsam' are indiscriminately applied to these substances). It is a resinous matter exuding from the bark of an Oriental tree found in Abyssinia and Arabia. There is one kind called *balm of Gilead*, and another called *balsam of Mecca*, between which some comparison has arisen, from ignorance whether or not they are identical; but for the purpose of general description we may deem them so. The plant producing this balm grows to a height of fourteen feet, flourishing in a hot climate and in a barren stony soil. The wood is white, light, and of open texture, covered with a smooth bark; this bark resembles in colour that of a standard cherry-tree, and emits a very fragrant odour. The leaves somewhat resemble those of rue, and the flowers those of the acacia. The fruit consists of small oval berries, containing a yellowish fluid similar to honey, and exhaling a perfume.

The balm flows from incisions in the tree, which are made with an axe during the months of July, August, and September, at a time when the sap is circulating with great activity. Each day's produce is received in small earthen bottles, and thence poured into one of larger dimensions; but the quantity obtained is very small, and its collection is tedious and troublesome, for the total exudation is usually but three or four drops in a day, nor does the most productive tree afford above sixty; this scarcity is one reason why the balm is sold at so high a price as it commands in the East. The odour soon after collection is strong and pungent, occasioning a sensation like that of volatile salts; its intensity decays, and indeed wholly disappears, if the balm be not carefully preserved. It has a rough, acid, pungent taste, and a light yellowish colour. It dissolves readily in water. It acquires a deeper tinge of yellow by time, and thickens to the consistence of honey. The high price of this substance leads to a system of adulteration on the part of those who sell it; oil of sesamum, turpentine, honey, wax, and other ingredients being mixed with it to increase its weight.

The balm obtained from the plant in the above manner is called *opobalsamum*; but the same plant yields two other forms of the substance, one called *carpobalsamum*, prepared by expressing a pungent and odorous juice from the fruit, and another, called *xylobalsamum*, prepared from a decoction of the twigs. These twigs are collected in small faggots and sent to Venice.

The balm of Gilead, or Mecca balsam, has been at various times and in various countries recommended as a cure for almost all the "ills that flesh is heir to." Some have applied it as a vulnerary, to cure wounds; some as a stomachic; some for fevers; others for rheumatism. As an antiseptic it has been celebrated from very early times, and is for that reason employed in embalming. When the plague makes its appearance in Egypt, those who can afford so costly an antidote take a small quantity of the balm daily. Its principal use in the East, however, is as a cosmetic by the ladies of rank. After a warm bath, the face and other parts of the person are anointed with the balsam; and the same process is continued every third day during a month. Oil of almonds and other cosmetics are then rubbed over the skin, to give the finishing bloom for which the balm was a preparative. Lady Mary Wortley Montague tried some of this balm on her face; she paid a price for it by three days' pain and irritation to which it subjected her, but found that it gave to the complexion an artificial bloom for which the ladies of Constantinople prized it.

Capivi Balsam, or *Balsam of Copaiba*, is another of the natural balsams procured from plants. This is obtained from the *Copaifera officinalis*, a tall and elegant tree, growing in Brazil and several other parts of South America. To procure the balsam, several incisions, formed sometimes with an auger, are made in the tree near the ground, penetrating through the bark into the substance of the wood; the balsam flows out of these holes in such abundance, that sometimes, in three hours, twelve pounds have been obtained. The balsam is colourless when flowing from the tree; after awhile it becomes of an amber colour, and considerably viscid, but retains its transparency. The smell is fragrant and powerful; the taste is bitter, heating, and aromatic, and it stains paper in the same manner as oil. It is almost insoluble in water; but it may be dissolved in fixed and volatile oils, and in spirits of wine. With the latter liquid it makes a strong penetrating tincture. It may be separated by distillation into two component ingredients; an insipid resin, and a highly fragrant oil, the latter retaining all the essential properties of the original balsam.

The capivi balsam has considerable medicinal value; though, as in many other cases, they have been exaggerated. Many distressing diseases are alleviated, if not cured, by its agency; and it appears to be an important item in the Pharmacopœia.

The *Balsam of Peru* is a third variety, belonging more or less closely to the other two. It is a gummy liquid which exudes from the *Myroxylon Peruvianum*, a large tree growing in Peru, Mexico, Brazil, and other parts of South America. The ancient Mexican kings are said to have cultivated this tree in their gardens for the sake of the balsam, which flows from the bark whenever the latter is wounded, especially at the end of the rainy season. It exudes very sparingly, and soon concretes into a fragrant brittle resin. There are two kinds, the black and the white, the latter of which is more valuable and fragrant than the former. The common sort is of a dark colour approaching to black; the smell highly fragrant; the taste aromatic, rather bitter, and very acrid; and the consistence always thick and viscid—the white variety assuming a more solid form. It is scarcely soluble in water, but completely so in spirits of wine, and yields on distillation a fragrant reddish oil. Peruvian balsam is extensively employed in medicine as a stimulant, both internally and externally. A tincture is made by dissolving the balsam in spirits of wine, and it enters into several of the artificial or compound balsamic pre-

parations. It is frequently given in the form of an emulsion mixed with water and white of egg.

The *Balsam of Tolu* is another variety. This is the product of the *Toluifera balsamum*, a tree growing in the province of Tolu in South America. The balsam is obtained, as in the other instances, by making incisions in the bark of the trees. It is of a reddish yellow colour and pellucid; its consistence when fresh is extremely tenacious, but by age it becomes brittle. In hot weather pieces of the balsam have a tendency to coalesce and adhere to the bottom of any vessel in which they are kept. It yields an extremely fragrant and grateful smell, but only a slight taste. It readily imparts its flavour to watery liquids, though almost insoluble in them. Eight ounces of this balsam boiled in three pints of water make a very fragrant decoction, used in this country for medicinal purposes. A tincture is also prepared by dissolving an ounce and a half of the balsam in a pint of rectified spirits of wine. When this balsam is burned, it yields a remarkably aromatic penetrating smoke; and on this account it was often an ingredient in those fumigations which were formerly so much employed with a view either of purifying an infected atmosphere or of diffusing a grateful perfume. It is used in medicine chiefly as a stimulant.

There are the *balsamum rachasira*, the *balsamum Carpathicum*, the *balsamum Canadense*, and others, which partake of the general character of those above described; all being produced by exudation from the trunks of trees, and all being more or less aromatic and stimulant. There is another, more important than these, called *storax*. This is a resinous drug, obtained in greatest perfection from trees growing in Asiatic Turkey. It issues in the fluid state from incisions made in the bark of the trunk or branches. It has a most pleasing fragrant ordour. Two kinds of this balsam or resin have been commonly distinguished in the shops, viz. the *pure* and the *common* storax. The first of these is usually obtained in irregular compact masses, free from impurities, of a yellowish or reddish brown appearance, and interspersed with whitish drops. It is extremely fragrant, and melts readily. The masses generally are termed 'storax in the lump,' while the whitish drops or tears are called 'storax in the tear.' The common storax is imported in large masses, very light, and bears but little external resemblance to the purer; it is, in fact, composed of dirty sawdust mixed up with the resinous matter. Common storax, infused in water, imparts to the menstruum a good yellow colour, a slight odour, and a slight balsamic taste. Among some of the ancients, storax was a familiar remedy in catarrhs, coughs, asthmas, and other complaints. The name of *storax*, or *liquid storax*, has also been applied to an exudation from a North American tree; it is obtained from incisions made in the trunk; while a liquid called *liquidambar* is obtained by boiling the bark or branches in water. The liquid storax used formerly to be much used for external applications, but it has fallen into comparative disuse.

Artificial balms or balsams are numerous, and are either avowed imitations of the natural products or asserted to possess similar qualities. *Friar's balsam*, or *Jesuit's drops*, and the *Balsamum Vitæ*, or "Balsam of Life," introduced by Hoffman, are among the most noted of them; but of these compounds it is not our purpose to treat.

It has been remarked with respect to the medicinal use of all these kinds of balsam:—"Of all the properties which have been attributed to the internal use of balsams, none is more ancient and commonly prevalent than that of *healing* or *vulnerary*." This idea appears to have arisen from the observations of their use when externally applied to a recent wound. If a gash is made in the hand with a clean cutting knife, and the parts are brought together and bound up with a rag dipped in any balsam, and left undisturbed for some days, it is matter of common remark that the wound will generally heal without any suppuration, by simple adhesion of the divided parts.

The Fair at Reval.—The Jahrmarkt, or annual fair, is now going forward in Reval. This is held in a most picturesque spot, beneath the old elm-trees before the church of St. Nicholas; the low wide-roofed booths surmounted with their different insignia, with wares of all colours floating around them, and merchants of all complexions swarming before them, while the venerable trees and time-worn edifice look down in sober grandeur on all this short-lived bloom. In old times, every merchant of any consideration in Reval removed to his booth in the fair, and old customers were welcomed to old goods; and though the one was not less dear, nor the other less difficult, yet both buyer and seller equally enjoyed the gaiety of the time, and were satisfied with this social gain. But now Reval mankind is becoming soberer, and by tacit consent it has been agreed that as no superiority in the goods nor accession in the demand accompanies this change of place, it is as well to leave the merchandise in its place on the counter, instead of flaunting it forth beneath the old trees in the church-yard. The Jahrmarkt is therefore gradually being abandoned to the travelling merchants from countries widely severed, who peregrinate from one mart to another, and, save the same sovereign, own no social element or bond in common. Here were Russians with their Siberian furs, and Bulgarians with their Turkish clothes, and Tula merchants with their cutlery—all infinitely more interesting to the foreigner than the wares they displayed. And before his booth lolled the sleepy Tartar, with flat face and high cheek-bones, and little eyes which opened and shut on his customers with a languor and expression often absent from orbs of twice the dimensions—and beside him paced the grave Armenian, with long nose and high peaked forehead, and searching glance—neither comprehending the other, and both accosting me in Russian scarce superior to mine own. "Whence does the *Sudarina* come?" "*Ya Anglichanka*," "I am an Englishwoman," I replied; an avowal abroad, like that of a patrician name at home, never otherwise than agreeable to make, and, thinking to increase his respect, added, "and my home is two thousand wersts off." "*Eto nichaco*," "That's nothing," said the Armenian, with a smile not unmixed with disdain; "my wife and children live six thousand wersts hence." Nor is this by any means an extreme case—the Petersburg post penetrates to inland homes fourteen thousand wersts removed from the monarch's residence.—*Letters from the Baltic.*

Mines of Potosi.—The mountain of Potosi, when viewed from the city heights, with the hill in its front, called the Younger Potosi, enclosed to the eye within the circumference of the great cone without, is in shape like an extended tent, and if the mind of the observer can separate the sum of moral evil it has inflicted on the world from the bare view, no sterile object in nature can be more truly magnificent. Leaving out of the question its conformation, the numerous metalliferous tints with which the cone is patched and coloured, green, orange, yellow, grey, and rose-colour, according to the hues of the ores which have been scattered from the mouths of the mines, are singular and beautiful in effect. The number of the mines is reckoned by some Spaniards at five thousand. This is an exaggeration at first appearance, but it must be understood by the reader that it refers to portions of mines called 'Estacas,' or individual shares, consisting of so many square 'varas' (yards or feet) which each proprietor holds by virtue of what is called 'denouncement,' as prescribed in the old Spanish code, or "laws of the mines." Whatever may have been the quantity of these Estacas once at work, not more than a hundred were in activity when I was at Potosi, and probably not one half that number until General Miller became the governor, when affairs began to wear a brighter aspect, and the country to recover a little from its distresses. This was seen to be the case in all the different branches of employ. Previous to the Revolution the river before alluded to turned the barbarously constructed machinery of ninety 'ingenios,' or stamping-mills, for breaking the ores.—*Captain Andrews's Journey from Buenos Ayres to Potosi.*